

How to Create an Efficient & Effective NBHS Follow-up\Diagnostic ABR Program

Boston Children's Hospital

Briana Dornan Nichols, AuD Briana.Dornan@childrens.harvard.edu

Tamar Gomes, AuD Tamar.Gomes@childrens.harvard.edu

Hallmarks of an Efficient & Effective Program

- Develop a guideline for practice for staff
- Prepare families for testing to allow for success of visits
- Prepare the test environment for success starting in the first moments of the visit
- Provide staff with the tools needed to complete evaluations seamlessly everyday
 - Including troubleshooting tips which are reviewed regularly
- Track the status of each patient
- Coordinate closely with birth hospitals
- Coordinate closely with the NBHS Program stakeholders at the Department of Public Health

Developing a Guideline

Use available resources, don't reinvent the wheel

- Published guidelines & protocols are available for reference
 - Ontario Infant Hearing Program
 - Vermont Department of Health Hearing Advisory Council
 - AAA - Assessment of Hearing in Infants and Young Children Clinical Guidance Document
 - British Columbia Early Hearing Program - Diagnostic Audiology Protocol
 - British Society of Audiology – ABR Testing in Babies
- Consistency with trusted, functioning, equipment makes the process easier
 - Multiple locations? Same equipment & same setup
 - Calibrations
 - Stimulus Parameters & normative data go hand in hand
- Clearly outline minimum requirements for testing vs ideal goals
 - MA DPH requirements: Tymps, OAEs & Freq Specific ABR
 - Minimum criteria for discharge (for BCH):
 - Present DPOAEs & 2 freq (high freq & low freq separated by an octave)
 - ≥ 1000 sweeps
 - $\leq 10\%$ artifact
 - normal limits & nHL to eHL corrections

* If not, then further testing is **required** or a reasonable explanation documented

- **What are the true goals of testing? ... this is not the minimum!**
 - Tymps, DPOAEs, 500, 1k, 2k, 4k & 8k Hz via ABR bilaterally (for BCH)

★ **Write** it down for easy reference

★ Provide **training** so everyone is on the same page

★ Establish a **support** plan (set up Lifeline options)

Set up for Success

- Prepare the FAMILY before the visit
 - This is a "sleep hearing test". The baby will need to sleep for most of the 2 hour visit.
 - The parents should bring the baby in **very tired** and **very hungry** or feed the baby immediately before appointment.
 - Bring anything that might help the baby sleep:
 - swaddler or swaddle blanket
 - pacifier

- lovie
 - extra milk & diapers
 - Sleeping location for the baby is flexible:
 - Caregiver arms
 - Car seat/stroller
 - bassinet
 - carrier
 - Prepare the ROOM before the test
 - Turn off & remove all:
 - Cell phones
 - Smart watches
 - Personal electronics
- } (interference)
- Close room door
 - Dim lights (if possible)
 - Remind caregivers:
 - This is a sleep hearing test
 - Best results are obtained when the infant is sleeping
 - Please keep background noise as quiet as possible
 - Silence/whispering is preferred when testing is in progress

Testing tips & troubleshooting

- Eliminate anything electrical that is not necessary
 - Unplug unrelated equipment (just turning it off may not be enough)
 - Power-off cellphones (not just airplane mode)
 - Smart watches must be powered off or removed from the room)
- Braid cords & don't cross wires
- Keep transducers away from electrodes
- Prep the skin and match the impedances
 - We love 3M Red Dot Trace Prep Tape!
- Check frequently for pinched tubing & inserts out of the ear
 - Super itty bitty ears might need itty bitty inserts
- Slow the rate if needed
 - We traditionally start with 39.1/sec but frequently go use a slower rate if the response is not clear or if there is electrical artifact present
- Check head/neck position
- Start with High frequency first
 - 2k or 4k Hz
- If you are unsure if a response is present, increase the intensity
 - 20 dB steps at first, then 10 dB steps
 - save 5 dB steps for confirmation ABR testing

★ We encourage you to view the 1 hr CEU course online: Common Errors in ABR Recording and Analysis (Course: #29880) Presented by J Hall via Audiology Online
<https://www.audiologyonline.com/audiology-ceus/course/common-errors-in-abr-recording-29880>

Cross Check & Support

- 2nd Audiologist Sign off for all waves
 - "Would you stand up in court for the results?"
- Support "Lifeline"

- During testing options for reaching out quickly in a pinch
- After testing options
 - It's ok to tell parents that results need to be reviewed with a colleague
 - Provide the information you are able to and/or set up a time to go over results soon via phone, virtual appointment or in person in no longer than a week
 - You can still do this even if you are a solo practitioner!
 - Reach out to an old colleague, classmate, professor, or another provider
 - Send de-identified waves

Track the Status of Each Patient

- Many different programs exist to track all providers visits in one location:
 - We use Sharepoint and SmartSheet
- The system itself isn't important: What matters is making sure that you keep track of the results for each patient in a HIPPA compliant manner
- Important to include:
- MRN, DOB, NBHS status, ABR results, Risk factors for hearing loss, Parent contact information, Plan for follow-up

Relationships with Local Birth Hospitals

- Contact your local birth hospitals and speak to the Managers of the NBHS programs
- Establish relationships with these professionals to ensure that all babies who refer on the NBHS can be seen at your facility within three weeks of the refer on the newborn hearing screening.
- Follow-up regularly with the NBHS managers to discuss the results of their referrals to your facility
- Secure time in your schedules which can be utilized for urgent ABR follow-ups for the NBHS programs in your area
- Make your best effort to respond to hospital staff when they are in need of an appointment at your facility

Relationships with Early Intervention Facilities

- Make direct referrals to Early Intervention facilities as soon as you confirm the presence of hearing loss
- Discuss Early Intervention services, with the families of babies with hearing loss, as soon as you identify hearing loss and at every visit in the future
- Encourage families to fully involve with their Early Intervention providers
- Inform families of their rights to have specialists with knowledge of deafness and hearing loss involved with their care

Coordinate Closely with the Department of Public Health NBHS Program in Your State

- Ensure that all staff submit the results of all visits to DPH in a timely manner
 - Track the submission of this information
 - Remind staff if they have not submitted the required information: EVERY TIME
- Establish relationships with the Directors of the DPH NBHS program in your state
- Create relationships with the Epidemiologist for the DPH NBHS program in your state
- Respond quickly to these stakeholders when information is requested from your program